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AUTHOR Thomas, Hollie B.
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ABSTRACT

Barriers to the linkage of vocational education and structured apprenticeship programs and facilitators useful in overcoming the barriers were identified. Subjects were 46 people who were interviewed to identify potential barriers and facilitators to linkage and 288 people who completed a survey questionnaire to verify the identified barriers and facilitators. The samples were comprised of state vocational administrators, vocational education students, vocational education instructors, Bureau of Apprenticeship Training representatives, apprenticeship committee members, apprenticeship instructors, and apprentices. Identified deterrents to a closer linkage between vocational education and registered apprenticeship programs were of two kinds--those on which personnel from both organizations agreed and those that one agency perceived the other as creating. Respondents in all agency groups clearly believed increased communication and planning between vocational education programs and industry to be essential to resolution of any barrier. A high level of agreement in regard to cooperative planning efforts existed in which apprenticeship committees would provide more feedback into the development of vocational education programs. (Seven data tables are included.) (YLB)

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Identification of Barriers and Facilitators to Linking Vocational Education and Registered Apprenticeship Programs[1]

Hollie B. Thomas
Florida State University

Linkages are required between many agencies that deliver skill training. For example, Vocational Education and CETA are mandated to develop linkages by their respective legislation. These agencies have differing goals and serve different clients (Miller, 1980). In contrast, there is no legislation that requires linkage between vocational education and registered apprenticeship training--two agencies that have similar goals and serve a similar clientele (Glover, 1980). It would appear that few linkages have developed over the years since the passage of the Smith-Hughes Act in 1917, and the Fitzgerald Act in 1937. A search of the literature indicates that little has been done to encourage such a linkage. It would seem that linkage would enhance the ability of both agencies to accomplish their respective objectives. In addition, the advantages that society would reap from this linkage are: 1) increased participant access to structured training programs and the completion of the skill development of the work force, 2) a supply of skilled manpower to meet the needs of industry would be developed, 3) the training cycle necessary for skill development would be completed, and 4) the improvement of worker satisfaction and reduced

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turnover would increase the stability in the industrial work-place. This would be of great assistance in the attempt to regain the edge in quality workmanship that this nation once enjoyed (Lyman, 1981).

Purpose

The purpose of this study was to identify the barriers to the linkage of vocational education and structured apprenticeship programs and to identify the facilitators that will be useful in overcoming the identified barriers. The rationale for identifying the barriers to linkage and facilitators for overcoming the barriers to linkage is that, by coordinating the resources of these agencies, vocationally trained participants who possess the basic skill should have the opportunity to continue their training in a registered apprenticeship program in order to develop the necessary skill required for attainment of the journeyman level competency. In addition, it is considered advisable for these two agencies to coordinate their activities in order to meet the objectives of their respective agencies more efficiently.

Objectives

The specific objectives of this research were to:

1. Identify the barriers to linkage of vocational education and registered apprenticeship programs.

2. Identify the facilitators that can be employed to overcome the identified barriers.

3. Identify the discrepancies between the perception of barriers as perceived by vocational educators and registered apprenticeship personnel.

Review of Literature

The review of literature will focus on the nature of linkage, the barriers to linkage and facilitators of linkage. Specific references

will be made to the linkage of apprenticeship training and vocational education, where applicable.

Linkage has been very generally defined as "any arrangement between organizations that requires mutual coordination and an exchange of resources and activities" (Banathy, et al, 1978). Coordination, in turn, leads to unified and concerted action toward a common purpose (Starr, et al, 1980). Such linkage arrangements when seen as mechanisms for expanding education may require the use of the more specific definition as follows:

> A linkage is a negotiated, authoritative arrangement between organizations whose internal components allow for mutual coordination and/or exchange of resources or activities. The expressed purpose is to achieve not only each organizations' goals and objectives, but, also to achieve the mutually-defined goals and objectives that arise from the linkage process (Banathy, 1978).

Thus, agencies that have such linkages can be said to be in a state of alignment for the purpose of attaining common goals (Drewes, 1980). The common purpose of vocational education and registered apprenticeship programs is clearly to provide assistance in the transition from school to work. The accountability of vocational education is based primarily on the placement of completers in the jobs for which they were trained (Vocational Education Act of 1963 as amended), whereas a registered apprenticeship program has for its purpose the developing of highly skilled journeymen through structured training (ETA/DOL, 1977) after entry into the occupation. Thus, it can be seen that structured apprenticeship training commences where vocational education leaves off.

If the programs so perfectly mesh, what then can provide barriers to linkage? Glover (1980) suggests that apprenticeship is understood

by few vocational educators and that vocational education is not understood by many involved in registered apprenticeship programs. His estimate of the number of individuals in the United States who know both systems well is no more than twelve, not knowing about the other agency leads to protection of one's own turf (Maurice, 1979) and the accusation from persons in both agencies that the other is an unnecessary duplication. Concerns for: 1) lack of commitment, 2) loss of autonomy, 3) insufficient time to conduct linkage activity, 4) apparent absence of gains to be made from linkages (Banathy, 1978), 5) philosophic differences of the actors (Mimbs, 1980), and 6) uncertainity of funding levels (Starr, et al, 1980) have all been expressed as reasons for reluctance to form linkage. Industrial personnel have been quoted as saying "schools should just teach kids how to read and write, we will teach them the job skills they need" (Russell, 1978). Such philosophic differences result in the absence of mutual respect, confidence, and trust which are necessary elements for linkage to occur (Starr, et al, 1980).

If a project that is designed to form linkages is to be successful, it appears that the barriers must be anticipated so that linkage facilitators can be identified and used such that commitment from the actors involved can be obtained. Since linkage appears to be a special case of coordination, ideas can be drawn from the literature that suggest ways to facilitate coordination. Starr, et al (1980) cites: 1) potential for mutual benefit, 2) awareness of agency functions, 3) accessibility of involved agencies, 4) opportunity for communication, and 5) incentive to develop relationships as being among the basic necessities for

interorganizational relations. It is important to note that the agencies need not have identical goals for effective linkages to be developed. In fact, linkages may serve different sets of goals for each cooperating agency (Banathy, et al, 1978). This appears to be the case for vocational education and registered apprenticeship training. For, if a vocational student enters an apprenticeship the vocational program will appear more accountable, and the industry is assured of a skilled employee as the result of the structured training provided by the apprenticeship.

Method

Subjects. Participants were involved at two points in this study, first as interviewees to identify the potential barriers and facilitators to linkage, and secondly as respondents to a barriers and facilitators survey which was developed from the results of the structured interviews.

A total of forty-six people, equally distributed over the five vocational education regions and the seven apprenticeship regions were initially interviewed. That sample was comprised of the following representatives: six Bureau of Apprenticeship Training representatives, five apprenticeship committee members, four apprenticeship instructors, six apprentices, three state vocational education administrators, ten vocational education directors, five occupational specialists, and two vocational education students.

A purposive sample of 288 was surveyed to verify the identified barriers and facilitators resulting from the previous interviews. The survey sample, which included 19 of the original 46 interviewees, was

comprised of the following representatives who were distributed over the respective vocational education and apprenticeship regions: fifteen state vocational education representatives, 38 vocational education directors, 19 vocational education occupational specialists, 49 vocational education instructors, 15 representatives from the Bureau of Apprenticeship Training, 72 apprenticeship committee members, and 70 apprenticeship instructors.

Materials

Materials included an interview schedule for identifying the potential barriers and facilitators relating to linkage and a questionnaire for verifying those previously identified barriers and facilitators.

The interview schedule. The objectives of the interview instrument were to determine the present situation of various vocational education and apprenticeship programs in regard to linkage, to identify specific barriers which hinder or prevent present or potential linkage, and to determine facilitators for overcoming the identified barriers.

The 21 items used in this interview schedule were written following a series of informal interviews with agency personnel in the local area. From these informal interviews a list of apparent barriers were generated and categorized. Items for the interview schedule were then written to reflect the categories of barriers which included: functionary differences between the agencies, (Vocational Education and Apprenticeship), differences in perceived characteristics of graduating vocational education students, the autonomy of the organizations, the varied training objectives characteristic of the agencies, the issue of advanced standing in apprenticeship programs, and the general lack of awareness between the organizations.

Barriers and facilitator sections were included in the instrument to record examples of barriers and facilitators that were mentioned by subjects throughout the interviews. The instrument also provided space to record additional barriers and facilitators which were apparent to the interviewer at the conclusion of the interview.

The questionnaire. Specific barriers identified were sorted into categories of barriers which concerned: the apprenticeship selection process, the administrative relationship between the agencies, instruction in vocational education, the issue of advanced standing, awareness and communication, and the characteristics of the agencies and their programs. Statements reflecting the content of the barriers were written and included on the instrument. In a similar manner the facilitators that were suggested during interviewing were grouped and items written and included in the instrument. The forty-eight distinct barriers that resulted were included in six specific categories of barriers (selection, administrative, vocational education, instruction, advanced standing, awareness and communication, and characteristics of the agencies). The barrier statements were worded in either a moderately positive or negative manner so that reliable variance with respect to the attitude in question could be obtained (see Nunally, 1978, pg. 605). The subjects were instructed to respond to each statement by circling a number from 1-5 along an agreement/disagreement continuum. The five-point Likert scale (see Nunally, 1978) following each item ranged from strongly agree (1) to strongly disagree (5) and contained a middle point which, in this case, represented a neutral opinion.

Procedures

A standard procedure for phoning interviewees was employed and included interview techniques (see Borg & Gall, 1963; Englehart, 1972; and Seltiz, Wrigthman & Cook, 1976) which standardized the interview format and data collection procedures. Interviews began with an introduction which introduced the interviewer, described the objectives of the survey and explained the purpose of the telephone call. Subjects were asked if they could spare 15-30 minutes for an interview regarding their organization (Vocational Education or Apprenticeship) and the other organization. The interviewees were not told initially that barriers were being investigated, but only that the possibility of the agencies associating more closely with one another was being investigated. Finally, subjects were assured that if they participated responses would remain anonymous.

The essence of subjects' responses were recorded on the interview instrument. Any comments which represented barriers or facilitators to linkage were noted in designated spaces. Each of the twenty-one questions was asked for most participants, exceptions occurred when previous responses had sufficiently addressed subsequent questions, or when items did not apply--as was common when vocational education students or apprentices were interviewed. In conducting the interviews, the interviewer probed brief or shallow responses yet moderated the tempo of conversation to ensure that the interview was satisfactorily completed in a reasonable period of time.

At the conclusion of the interview, the interviewer recounted a list of barriers identified by the participant during the telephone

interview. The subject was then asked to confirm or deny those barriers and to suggest facilitators for overcoming those perceived barriers to linkage.

Telephone interview procedure. A list of sixty potential interviewees (who were representative of apprenticeship and vocational education personnel throughout Florida) was determined from a number of apprenticeship and vocational education sources. The Bureau of Apprenticeship and Training for the state of Florida provided the project staff with a directory of regional BAT representatives. These regional representatives, in turn, provided information regarding registered apprenticeship programs in their areas. A sample of those apprenticeship programs supplied names, addresses, and phone numbers of committee members, apprenticeship instructors and registered apprentices. The Florida Education Directory provided information regarding vocational education directors and occupational specialists, while the Directory of Schools and Courses for Industrial Education listed the names of vocational education instructors who, in turn, provided information concerning vocational education students. In most instances, the randomly selected subjects were contacted during daily office hours. Vocational education students and apprentices were contacted at home in the evening.

Survey Procedure. Subjects, to whom surveys were sent, were purposively selected from the pool of subjects acquired prior to the telephone interviews. Participants were selected on the basis of the following criteria: their organization (State and local Vocational Education, Apprenticeship, and BAT); their job within that organization

(vocational education administrator, vocational education director, occupational specialist, vocational education instructor, BAT representative, apprenticeship committee member, and apprenticeship instructor); their trade; whether the apprenticeable trade was joint or non-joint; and the participant's regions as specified by both vocational education and apprenticeship. This sampling procedure was conducted such that a survey sample representative cross section of agency personnel throughout Florida who would or could be involved in linkage activities between vocational education and apprenticeship, was included.

A survey, cover letter, and pre-addressed stamped envelope were mailed to each of the 288 subjects. The returned surveys were coded for analysis.

Analysis. Questions that were posed in this research could best be answered by descriptive statistics. Thus, means, frequency counts, and percentages were computed. A deterrent statement was considered to be a deterrent to linkage if 50% or more of the respondents from any of the four level by agency groups agreed or strongly agreed.

Results and Discussion

Identification of Deterrents

The percentage of each respondent group who agreed or strongly agreed was calculated for each deterrent statement. An examination of the resulting percentages indicates that 39 of 48 (81%) of the deterrent statements were considered to be deterrents to the linkage of vocational education and apprenticeship programs by one or more of the surveyed groups according to the preestablished criterion of 50% or more of a respondent group indicating agreement or strong agreement.

A closer inspection indicates that the state and regional Bureau of Apprenticeship and Training and Vocational Education Administration perceived that a greater number of the listed deterrents were barriers to linkage than were perceived by the local level apprenticeship or vocational education personnel. The number of deterrents that exceeded the 50% criterion for these groups was 21, 26, 16 and 16 respectively.

The perceptions of the extent to which the deterrent statements represent barriers to the linkage of the two agencies varies considerably among the respondent groups (see Tables 1 through 6). State and regional vocational education administrators perceived the process by which apprentices are selected, issues surrounding the granting of advanced credit in apprenticeships to vocational students, awareness and communication between and throughout both organizations, and characteristics of apprenticeship programs and vocational education to encompass many of the deterrents to linkage. These vocational administrators did not perceive any of the deterrent statements included in the categories of administrative relationships between registered apprenticeship programs and vocational education and instruction in vocational education to represent a deterrent to linkage.

State and regional level BAT personnel perceived that a substantial number of the deterrent statements included in the categories of Administrative relationships between registered apprenticeship programs and vocational education, instruction in vocational education, issues surrounding granting advanced credit in apprenticeship to vocational students, and awareness and communication between and throughout both organizations as being deterrents to linkage of the two agencies.

Table 1

Number and Percentage of Respondents in Agreement with Items Related to the Process for Selecting Apprentices According to Agency Group

Survey Item	VE Administrator	BAT	Local VE	Apprentice-ship
The process of selecting registered apprentices:				
1. favors those who have a friend or relative in the trades.	5 (56%)	2 (22%)	27 (59%)	6 (14%)
2. is often not communicated to the vocational education student.	8 (89%)	6 (67%)	32 (70%)	17 (40%)
3. is often conducted at a time of the year that requires high school graduates to wait for nearly a year after graduation before they can apply.	4 (44%)	0 (0)	18 (39%)	4 (10%)
4. affords no preference for prior training in vocational education.	8 (89%)	2 (22%)	26 (57%)	10 (24%)
5. provides a way for keeping the labor market narrow.	6 (67%)	0 (0)	24 (52%)	3 (7%)
6. limits the entry of younger applicants.	5 (56%)	0 (0)	21 (47%)	6 (14%)
7. is affected by the economy and the job market.	7 (78%)	9 (100%)	42 (91%)	31 (86%)

Table 2

Number and Percentage of Respondents in Agreement with Items concerning the Administrative Relationship Between Apprenticeship Programs and Vocational Education According to Agency Group

Survey Item	VE Administrator	BAT	Local VE	Apprentice-ship
The exchange of monies and services is a barrier because of:				
8. the procedures used by vocational education to select and certify apprenticeship instructors.	0 (0)	3 (33%)	10 (22%)	8 (20%)
9. the way vocational education distributes funds earned through apprenticeship instruction.	1 (11%)	6 (67%)	9 (20%)	12 (29%)
10. a lack of awareness by apprenticeship personnel concerning funding of vocational programs for apprentices.	3 (33%)	6 (67%)	21 (46%)	16 (40%)
11. problems concerning the allotment and use of materials for apprenticeship classes in vocational facilities.	4 (44%)	7 (78%)	20 (45%)	17 (42%)

Table 3

Number and Percentage of Respondents in Agreement with Items concerning Instruction in Vocational Education According to Agency Group

Survey Item	VE Administrator	BAT	Local VE	Apprentice-ship
Instruction in vocational education:				
12. develops only general work skills.	0 (0)	9 (100%)	10 (22%)	20 (48%)
13. is outdated theoretically.	1 (11%)	6 (67%)	6 (11%)	12 (28%)
14. is limited by outdated equipment.	2 (22%)	6 (67%)	10 (22%)	14 (33%)
15. employs instructors with little practical experience.	1 (11%)	4 (44%)	5 (11%)	16 (38%)
16. is largely theoreticallyas opposed to "hands on."	2 (22%)	7 (78%)	6 (13%)	18 (43%)
17. cannot prepare a student for job entry, but prepares students to be trained helpers.	1 (11%)	5 (56%)	6 (13%)	24 (57%)
18. prepares students for non-existent jobs.	1 (11%)	7 (78%)	4 (9%)	12 (28%)
19. leaves its students with the impression that they are qualified for jobs for which they are not.	0 (0)	9 (100%)	8 (17%)	27 (64%)
20. prepares students for work, thereby making apprenticeship unnecessary.	3 (33%)	0 (0)	13 (28%)	1 (2%)

Table 3 - continued

Number and Percentage of Respondents in Agreement with Items Concerning Instruction in Vocational Education According to Agency Group

Survey Item	VE Administrator	BAT	Local VE	Apprentice-ship
21. includes students who are often immature and would therefore not make good apprentices.	2 (22%)	4 (44%)	18 (39%)	30 (72%)
22. includes students who are low in scholastic ability and would, therefore, not make good apprentices.	3 (33%)	5 (56%)	18 (39%)	29 (69%)

Table 4

Number and Percentage of Respondents in Agreement with Items Concerning the Issue of "Advanced Credit" According to Agency Group

Survey Item	VE Administrator	BAT	Local VE	Apprentice-ship
The granting of advanced credit in apprentice-ship programs for training received in vocational education is an issue because:				
23. contractors can't affort it.	1 (11%)	3 (33%)	6 (13%)	9 (23%)
24. Industry personnel want to make their own decisions regarding credit.	5 (56%)	9 (100%)	26 (58%)	28 (67%)
25. apprenticeship committees do not want to give credit for training based on theory rather than practical experience.	6 (67%)	6 (67%)	22 (48%)	24 (59%)
26. apprenticeship committees prefer the untrained applicant who can be taught their way.	4 (44%)	3 (33%)	20 (44%)	12 (30%)
27. credit should only be given for past work experience, (rather than related training) which can facilitate present job productivity as an apprentice.	0 (0)	6 (67%)	4 (9%)	14 (33%)
28. apprenticeship committees would prefer not to give credit because it is more cost effective to have an apprentice indentured for the maximum tenure.	7 (78%)	2 (22%)	19 (41%)	7 (17%)
29. a year in vocational education is not worth a year as an apprentice	0 (0)	6 (67%)	10 (22%)	31 (74%)

Table 5

Number and Percentage of Respondents in Agreement with Items Related to Organizational Awareness and Communication According to Agency Group

Survey Item	VE Administrator	BAT	Local VE	Apprentice-ship
The granting of advanced credit in apprentice-ship programs for training received in voca-tional education is an issue because:				
30. vocational educators lack understanding of apprenticeship programs.	3 (33%)	9 (100%)	18 (39%)	24 (65%)
31. apprenticeship committees lack under-standing of vocational education.	4 (44%)	5 (56%)	34 (74%)	20 (48%)
32. vocational educators do not communicate with industry regarding curriculum planning.	5 (56%)	7 (78%)	13 (28%)	22 (52%)
33. there is a lack of communication among vocational educators regarding apprentice-ship programs.	7 (78%)	9 (100%)	26 (56%)	26 (62%)
34. there is a lack of communication among vocational educators concerning apprenticeships.	8 (89%)	9 (100%)	27 (60%)	27 (64%)
35. apprenticeship personnel fail to conduct awareness activities for vocational education staff and students.	8 (89%)	4 (44%)	35 (76%)	21 (50%)

Table 5 - continued

Number and Percentage of Respondents in Agreement with Items Related to Organizational Awareness and Communication According to Agency Group

Survey Item	VE Administrator	BAT	Local VE	Apprentice-ship
36. there is a lack of communication between vocational education and the Bureau of Apprenticeship regarding apprenticeship programs.	6 (67%)	5 (56%)	30 (65%)	20 (48%)
37. there is a lack of communication between apprenticeship committees and the Bureau of Apprenticeship regarding vocational education.	5 (56%)	2 (22%)	21 (46%)	17 (40%)

Table 6

Number and Percentage of Respondents in Agreement with Items Concerned with Characteristics of Apprenticeship Programs and Vocational Education According to Agency Group

Survey Item	VE Administrator	BAT	Local VE	Apprentice-ship
The granting of advanced credit in apprentice-ship programs for training received in voca-tional education is an issue because:				
38. vocational education personnel like to reamin independent of the influence of apprenticeship personnel.	4 (44%)	8 (89%)	22 (48%)	23 (55%)
39. apprenticeship personnel like to remain independent of the influence of voca-tional education.	5 (56%)	3 (33%)	27 (59%)	17 (40%)
40. vocational education personnel are resistant to change.	4 (44%)	2 (22%)	9 (20%)	19 (45%)
41. apprenticeship personnel are resistant to change.	4 (44%)	2 (22%)	24 (54%)	8 (19%)
42. vocational educators try to exert too much control on apprenticeship programs.	0 (0)	2 (22%)	2 (4%)	9 (21%)
43. apprenticeship personnel try to exert too much control on vocational education.	4 (44%)	1 (11%)	8 (17%)	3 (7%)

Table 6 - continued

Number and Percentage of Respondents in Agreement with Items Concerned with Characteristics of Apprenticeship Programs and Vocational Education According to Agency Group

Survey Item	VE Administrator	BAT	Local VE	Apprentice-ship
44. the relationship between joint and non-joint apprenticeship programs creates a barrier for linking vocational education and apprenticeship programs.	5 (56%)	2 (22%)	18 (40%)	17 (40%)
45. apprenticeship personnel intentionally limit apprenticeship completions in order to limit the supply of trained workers.	6 (67%)	1 (11%)	18 (49%)	1 (2%)
46. joint apprenticeship committees are influenced by traditions which may hinder cooperative relationships with vocational education.	6 (67%)	1 (11%)	30 (65%)	12 (29%)
47. guidance counselors steer the "better" students away from vocational education.	9 (100%)	7 (78%)	41 (89%)	27 (64%)
48. the Bureau of Apprenticeship and Training is essential for developing and/or maintaining a positive relationship between vocational education and apprenticeship programs.	7 (78%)	6 (67%)	24 (52%)	32 (76%)

Local vocational administrators and instructors perceived that the barriers to linking vocational education and apprenticeship as including primarily the categories of the process by which apprentices are selected, awareness and communication between and throughout both organizations and characteristics of apprenticeship programs and vocational education.

The sixteen deterrent statements that exceed the 50% criterion of agreement for the local apprenticeship personnel were statements primarily representing instruction in vocational education, issues surrounding granting advanced credit to vocational students, awareness and communication between and throughout both organizations, and characteristics of apprenticeship programs and vocational education.

The deterrent statements for which the 50% agreement criterion was met for all respondent groups were: 1) the process of selecting registered apprentices is affected by the economy and the job market, 2) granting of advanced credit in apprenticeship programs for training received in vocational education is an issue because industry personnel want to make their own decisions regarding credit, 3) there is a lack of communication among vocational educators regarding apprenticeship programs, 4) there is a lack of communication among vocational educators concerning apprenticeships, 5) guidance counselors steer the "better" students away from vocational education, and 6) the Bureau of Apprenticeship and Training is essential for developing and/or maintaining a positive relationship between vocational education and apprenticeship programs. It may be noted that these six deterrents represent 4 of the 6 categories of deterrents. Thus while there is considerable dis-

agreement as to the nature of the deterrents, there is some agreement. It is possible that these points of agreement about deterrents may serve as a focal point of starting to overcome the deterrents to linkage, i.e., the agency personnel may choose to work to overcome these barriers on which they agree.

In summary, it appears that both vocational administrators and local vocational education personnel were more likely than state or local apprenticeship personnel to feel that the structure of the process for selecting apprentices affords more barriers to providing opportunities for vocational education students. Similarily both vocational education groups perceived the characteristics of apprenticeship programs as being a deterrent whereas the apprenticeship groups did not. Conversely the apprenticeship groups perceived the characteristics of vocational education to be a deterrent to linkage while the vocational education groups did not.

The distribution of funds earned through apprenticeship instruction is seen as being more of a problem to Bureau of Apprenticeship and Training representatives than it is to vocational educational administrators. This may indicate that representatives from the Bureau of Apprenticeship and Training feel that closer working relations can be developed if mutual decision-making on the part of both agencies is utilized to allocate funds earned through apprenticeship instruction.

The Bureau of Apprenticeship and Training personnel and, to a lesser extent, the local apprenticeship personnel consider the general quality and nature of instruction in vocational education to be

deficient and would thus present some barriers to a closer working relationship. Similarily, Bureau of Apprenticeship and Training personnel and to a lesser extent the local apprenticeship personnel considered the granting of advanced credit in apprenticeship programs for training received in vocational education to present problems to linkage efforts. It may also be noted that local apprenticeship personnel tended to disagree, in contrast to the Bureau of Apprenticeship and Training personnel, with the idea that credit should only be given for past work experience.

It appears that State level personnel in both the Bureau of Apprenticeship and Vocational Education perceived a noticeable gap in communication between the organizations, but are not overly concerned about any apparent lack of communication within their own respective organizations. In particular, the Bureau of Apprenticeship and Training personnel were concerned about what they see as a lack of understanding on the part of vocational education personnel about the nature and opportunities provided by apprenticeship programs, as well as a lack of communication with industry regarding vocational education curriculum planning. An indication that this barrier may be easily overcome is provided by the State level vocational administrators' indication that a need existed to establish activities with apprenticeship personnel which would increase their own awareness of apprenticeship programs.

Identification of Facilitators

According to the data presented in Table 7, a high percentage of respondents in all four groups were in agreement that it would be

Table 7

Number and Percentage of Respondents in Agreement with Items Concerned with Facilitators to Linkage According to Agency Group

Survey Item	VE Administrator	BAT	Local VE	Apprentice-ship
It would be beneficial if:				
49. vocational education were to raise its entry standards and only admit the more competent students.	3 (33%)	7 (78%)	17 (37%)	30 (51%)
50. graduating vocational education students were better prepared in the basic skills.	8 (89%)	8 (89%)	28 (61%)	36 (86%)
51. apprenticeship committees would make parents of vocational education students aware of apprenticeship opportunities.	8 (89%)	8 (89%)	42 (91%)	36 (86%)
52. vocational educators were more aware of apprenticeship programs, and the kind of workers needed in industry.	9 (100%)	9 (100%)	41 (89%)	37 (88%)
53. the Bureau of Apprenticeship would assume responsibility in establishing closer ties between vocational education and apprentice-ship programs.	7 (78%)	8 (89%)	37 (80%)	29 (69%)
54. apprenticeship programs were made mandatory.	1 (11%)	9 (100%)	9 (20%)	18 (44%)
55. a greater variety of apprenticeship programs were established.	4 (44%)	8 (89%)	27(59%)	24 (57%)

Table 7 - continued

Number and Percentage of Respondents in Agreement with Items Concerned with Facilitators to Linkage According to Agency Group

Survey Item	VE Administrator	BAT	Local VE	Apprentice-ship
56. apprentices' entry level could be clearly identified, thereby assuring appropriate placement in the apprenticeship program.	7 (78%)	9 (100%)	38 (83%)	32 (76%)
57. more pre-apprenticeship programs were jointly developed by vocational education and apprenticeship committees.	9 (100%)	7 (78%)	38 (84%)	30 (71%)
58. apprenticeship committee members were on vocational education and apprentice-ship committees.	9 (100%)	7 (78%)	40 (87%)	37 (88%)
59. apprenticeship committees provided feed-back to vocational education concerning the progress of vocational education students who became apprentices.	8 (89%)	9 (100%)	40 (87%)	36 (86%)
60. vocational educators would more often solicit ideas and input from industry concerning cur-rent needs, trends, and equipment.	9 (100%)	9 (100%)	37 (82%)	40 (95%)

beneficial if: 1) vocational educators would more often solicit ideas and input from industry concerning current needs, trends, and equipment (100% of both BAT representatives and VE administrators agreed); 2) vocational educators were more aware of apprenticeship programs, and the kind of workers needed in industry (100% of both BAT representatives and VE administrators agreed); 3) apprenticeship committees provided feedback to vocational education concerning the progress of vocational education students who become apprentices; 4) apprenticeship committee members were on vocational education and apprenticeship committees; 5) more pre-apprenticeship programs were jointly developed by vocational education and apprenticeship committees; 6) apprentices entry level could be clearly identified, thereby assuring appropriate placement in the apprenticeship program; 7) the Bureau of Apprenticeship would assume responsibility in establishing closer ties between vocational education and apprenticeship programs (although 80% of local VE personnel compared with 69% of local apprenticeship personnel agreed with this); 8) apprenticeship committees would make parents of vocational education students aware of apprenticeship opportunities; and 9) graduating vocational education students were better prepared in the basic skills (although only 61% of local VE personnel agreed with this item).

BAT representatives were more likely than VE administrators to feel that linkage could be facilitated if a greater variety of apprenticeship programs were established. Also, both BAT representatives and apprenticeship personnel were in greater agreement that it would be beneficial to linkage efforts if: 1) vocational education were to

raise its entry standards and only admit the more competent students; and 2) apprenticeship programs were made mandatory (100% of the BAT representatives agreed with this item compared with 11% of the VE administrators, while 44% of the apprenticesnip personnel agreed compared with 20% of the local VE personnel).

In summary, while there was strong disagreement between apprenticeship and VE respondents regarding the question of raising the entry standard into VE programs and making apprenticeship programs mandatory, agreement tended to be uniformly high on all other items in this section. In particular, respondents in all agency groups clearly supported increased communication and planning between vocational education programs and industry. In addition, there was a high level of agreement in regard to cooperative planning efforts in which apprenticeship committees would provide more feedback into the development of vocational education programs.

Conclusions

The deterrents to a closer linkage between vocational education and registered apprenticeship programs identified in this study appear to be of 2 kinds, those on which personnel from both organizations agree and those that one agency perceived the other as creating. In addition a set of what could be considered non-deterrents were also identified. However, it may be noted that respondents from a minimum of three respondent groups considered these statements as representing deterrents to linkage. Thus, those who attempt to facilitate linkage between these two agencies should consider all deterrent statements as "potential deterrents" in a given local situation.

It would appear that the issue of advanced credit in apprenticeship programs training received in vocational education should be resolved early in pre-linkage activities. If the Bureau of Apprenticeship and Training consider this a non-negotiable issue, vocational educators who wish to enter a linkage arrangement with apprenticeship personnel should be aware of this nearly from the outset. Otherwise the issues of advanced credit may result in the dissolution of the linkage arrangement. If the issue is negotiable, then a procedure for the awarding of advanced credit should be established.

Communication and awareness appear to be essential to the resolution of any barrier and thus should be included in any model developed for the purpose of creating linkages between vocational education and registered apprenticeship programs.

Regardless of organization, local level personnel appear to have less concern about the potential barriers than the state level personnel. Thus it would appear that attempts to develop linkages at the local level would be more productive than at the state level.

It is clear that each of the organizations studied has concerns about the maintenance of autonomy, thus an early activity in the development of linkage arrangements should include a process that will result in domain consensus. When this is accomplished the ground rules for overcoming the barriers to linkage that arise should be easily developed.

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